CLAIMS

What is claimed is:

1. A method for operating a wireless communications system for assigning system resources to users, comprising:

within a coverage area of a base station (BS) having a multi-element antenna array, estimating a spatial signature vector (SSV) for a current subscriber station;

using the estimated SSV as a weight vector, determining the output power that is correlated with a system resource to be assigned; and

assigning a system resource e to the current subscriber station that is determined to have the minimum output power.

2. A method as in claim 1, wherein the step of determining the output power includes steering a beamformer toward the current subscriber station by setting the weight vector equal to the SSV.

3. A method as in claim 1, wherein the step of determining the output power includes determining the average squared value of the antenna array output that has been despread using a code *i*.

4. A method as in claim 1, wherein the multi-element antenna array has *M* elements, and wherein the step of determining the output power operates an *M*-branch receiver to despread a signal received on each element with a spreading code *i*, to accumulate the despread signal over a symbol duration, to scale the accumulated signal by the weight vector, to sum all of the scaled values and to square the result, and to average the squared result over R samples to determine the output power for code *i* for the current subscriber station.

5. A method as in claim 4, wherein R has a value in the range of about 16 symbols to about 64 symbols.

6. A method in claim 4, wherein the value of R is varied as a function of at least a condition of the channel.

7. A synchronous space division multiple access, code division multiple access communications system, comprising a data processor for estimating, within a

coverage area of a radio base unit (RBU) having a multi-element antenna array, a spatial signature vector (SSV) for a current subscriber station, for using the estimated SSV as a weight vector when determining the output power that is correlated with each of a plurality of spreading code sequences, and for assigning a spreading code to the current subscriber station that is determined to have the minimum output power.

8. A system as in claim 7, wherein the data processor steers a beamformer toward the current subscriber station by setting the weight vector equal to the SSV.

9. A system as in claim 7, wherein the data processor determines the average squared value of the antenna array output that has been despread using a code *i*.

10. A system as in claim 7, wherein the multi-element antenna array has *M* elements, and further comprising an *M*-branch receiver for despreading a signal received on each element with a spreading code *i*, for accumulating the despread signal over a symbol duration, for scaling the accumulated signal by the weight vector, for summing all of the scaled values and squaring the result, and for averaging the squared result over R samples to determine the output power for code *i* for the current subscriber station.

11. A system as in claim 10, wherein R has a value in the range of about 16 symbols to about 64 symbols.

12. A system as in claim 10, wherein the value of R is varied as a function of at least a condition of the channel.

13. A method for operating a synchronous space division multiple access, code division multiple access communications system for assigning spreading codes to users, comprising:

within a coverage area of a base station (BS) having a multi-element antenna array, estimating a spatial signature vector (SSV) for a current subscriber station;

using the estimated SSV as a weight vector, determining the output power that is correlated with each of a plurality of spreading code sequences; and

assigning a spreading code to the current subscriber station that is determined to have the minimum output power.

14. A method as in claim 13, wherein the step of determining the output power includes steering a beamformer toward the current subscriber station by setting the weight vector equal to the SSV.

15. A method as in claim 13, wherein the step of determining the output power includes determining the average squared value of the antenna array output that has been despread using a code *i*.

16. A method as in claim 13, wherein the multi-element antenna array has *M* elements, and wherein the step of determining the output power operates an *M*-branch receiver to despread a signal received on each element with a spreading code *i*, to accumulate the despread signal over a symbol duration, to scale the accumulated signal by the weight vector, to sum all of the scaled values and to square the result, and to average the squared result over R samples to determine the output power for code *i* for the current subscriber station.

17. A method as in claim 16, wherein R has a value in the range of about 16 symbols to about 64 symbols.

18. A method in claim 16, wherein the value of R is varied as a function of at least a condition of the channel.